Attachment A
of
September 2003 Final Support Document

6. Oregon Department of Environmental Quality, Site Assessment Program, February 21, 1995, Strategy Recommendation, Harbor Oil, Inc., 21 pages.

REFERENCE 60

2-21-95

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HARBOR OIL
#24
SITE ASSESSMENT
(MULT)

DEQ SITE ASSESSMENT PROGRAM - STRATEGY RECOMMENDATION

012

Site Name: Harbor Oil, Inc.

Site CERCLIS Number: 071803985

DEQ ECSI Number: 24

Site Address: 11535 N Force Ave.
Portland, OR 97217

Recommendation By: Gil Wistar, Voluntary Cleanup and Site Assessment Section, DEQ Northwest Region

Approved By: Michael E. Rosen, Manager, Voluntary Cleanup and Site Assessment Section, DEQ Northwest Region

Date: February 21, 1995

Background, Portland Stockyards Site: The Harbor Oil Inc. site (formerly known as Chempro) is located in the historic "Stockyards" area of North Portland, a 46-acre property at the intersection of N Marine Dr. and N Force Ave. The Stockyards' general location is shown in Fig. 1. Oregon Waste Systems, Inc. (OWS), a subsidiary of Waste Management of North America, Inc., purchased the entire Stockyards parcel during the 1980s, intending to build a solid waste transfer station. OWS envisioned a facility that would recover reusable materials from domestic garbage, and serve as a transfer station for non-recyclable materials destined for eastern Oregon. Most Stockyards buildings were to be razed. This proposal prompted environmental evaluations by Sweet-Edwards/EMCON, Inc. and Golder Associates, Inc., beginning in 1987. OWS later abandoned its transfer station plans, and placed the site up for sale. In December 1994, OWS sold the property on which Harbor Oil has been operating to Harbor Oil, Inc.

Fig. 2 is a schematic block diagram of the Stockyards property, showing current land uses and lessees. Fig. 3 is a plan view of the site (the Harbor Oil facility is demarcated in the SE corner of the property). The Stockyard site was first developed about 1908, with the site's northern half used for livestock and accessory activities. This part of the site is now leased by a restaurant and several truck-related businesses. The Peninsula Terminal Railroad (PTRR) owns an 85-ft. right-of-way that bisects the Stockyards site; this rail line was developed with the livestock yards to transport cattle. Later, PTRR hauled and delivered coal, and most recently has handled bulk petroleum products, solvents, and other chemicals. The southwest part of the Stockyards property consists of seasonal wetlands that drain into Force Lake. The lake

is immediately south of the site. Heron Lakes Municipal Golf Course lies southwest of the Stockyards; it was built on the site of the World War II-era Vanport housing complex. Vanport was completely destroyed by the 1948 Memorial Day flood.

Between PTRR and Harbor Oil was the Farmer's Plant Aid (fertilizer) site, constructed during the 1930s or 1940s. Farmer's stored and used manure from the stockyards. According to a 1991 Golder Associates Preliminary Site Assessment, a 1973 aerial photo shows a drainage ditch running along the south side of the Farmer's site, presumably to divert runoff from Farmer's and the Harbor Oil site towards wetlands to the west. Farmer's was the subject of several complaints about wetlands degradation during the 1970s and 1980s. After the Army Corps of Engineers intervened and demanded that wetland filling activities cease, Farmer's moved off-site in 1990 and demolished the buildings it had occupied.

Sometime after Farmer's vacated the site (11619 N Force Ave.), Limex Transportation, Inc., a shipping container repair business, moved in. Over a weekend in late November 1994, a diesel release reported as between 50 and 150 gallons occurred at Limex, apparently from a faulty valve on a 300-gallon above-ground tank. Diesel flowed into the drainage ditch between Limex and Harbor Oil, entering the wetlands area (see Fig. 5). Cleanup involved product recovery and some soil removal from the most heavily impacted wetland areas.

<u>NOTE</u>: the Stockyards property as a whole (known within DEQ as the Oregon Waste Systems site) is ECSI #1091. The PTRR site, which is in the Voluntary Cleanup Program, is ECSI #1505.

<u>Background, Harbor Oil Site</u>: A 1956 aerial photo shows development and activity at the 4.2-acre Harbor Oil site: there are tanker trucks, a building, and a concrete slab and pond with areas of oil-stained soil. (Sometime before 1964, this pond was filled in.) By 1961, Empire Industries operated an oil recycling business at the site; Empire retained ownership until November 1974. Other site occupants during these early years included Harbor Distributing (type of business unknown) and Industrial Cleaning Systems, a truck cleaning company.

The first DEQ file information on the facility concerned a site visit (presumably prompted by a complaint) documented in a May 1973 memo. This memo used the terms "extreme [oil runoff] situation" to describe the site's effect on Force Lake. In March 1974 there was a major spill or release from the site, which spread oil over two acres of cattail marsh wetland and created a petroleum sheen over the entire surface of Force Lake. Investigators for DEQ and the Oregon Dept. of Fish & Wildlife estimated that 400 or more fish had died as a consequence of the spill. DEQ staff described the work area of the Harbor Oil site as "a mass of oil-soaked mud, covered in places by abandoned tankers, ruined machinery, and other junk." Along the south edge of the work area were several sumps filled

with an oil/water mixture, which drained into Force Lake.

As indicated above, Empire sold its business in November 1974, to Chempro of Oregon, Inc. In the aftermath of the 1974 oil release, DEQ ordered improvements in runoff management. In response, Chempro proposed and installed engineering upgrades in early 1975. DEQ then issued Chempro an NPDES permit allowing the discharge of water containing up to 10 mg/L of oil & grease into Force Lake. The permit was to expire on July 31, 1977, at which time Chempro was to cease further discharge to surface waters and route treated wastewater to the City of Portland's sanitary sewer. DEQ apparently took no action after its 1978 inspection showed that the sewer hookup had not occurred. At the time, Chempro indicated that it stored oily waste water in a temporary holding tank and used it as a dust suppressant. In October 1979, the office and shop were connected to the city sewer, but only for sanitary wastes.

In October 1979, a severe fire destroyed the Chempro facility. The fire marshal's report indicated that the blaze started in the tank-farm area, which consisted of a series of 20,000-gallon above-ground used-oil tanks and a heating system that evaporated water from the oil. The heat of the fire melted/ruptured at least five of these tanks, and blew apart many 55-gallon drums. There were about 300 drums on-site before the fire, containing waste paint products and thinners. In general, the incident caused large volumes of used oils and smaller volumes of waste paints to flow west and south across the site and into the wetlands and Force Lake. There is no record in the file of any subsequent on- or off-site remediation.

Chempro rebuilt the facility in 1980, initially by leveling the property and covering it with gravel. Site re-grading included the creation of a dike along the southwestern edge of the site (Fig. 4). Chempro then installed a 320,000-gallon bulk storage tank (#23 on Fig. 4), a new tank farm, and constructed several buildings. Chempro also dug out a pond on the southwest portion of the site to serve as a crude oil/water separator. Later this pond was replaced with an engineered oil/water separator.

In late 1980, Chempro submitted a RCRA Part A Permit application to EPA, indicating that the company's main business was reclaiming industrial fuel/lubricating oils and waste solvents. In December 1984, Chempro sold the business to Harbor Oil, Inc. Harbor's revised RCRA Part A application stated that it did not reclaim used solvents. Its business was (and remains) the collection of used oils and asphalts, which are processed and re-refined into usable products. Harbor's operation has included a tank-truck cleaning ("Detrex") facility in the center of the site, using heated trichloroethylene (TCE) to remove accumulated asphalt from tank truck interiors. It is a closed-loop system that collects and distills the TCE/asphalt mixture, for recovery of usable TCE. Residual petroleum/TCE sludges are stored in 55-gallon drums and hauled off-site for treatment and disposal.

Routine DEQ air and water-quality permit inspections occurred at Harbor every year between 1985 and 1989. Inspectors generally described the facility as clean and well maintained, and no permit violations resulted from these scheduled inspections. The most recent inspection took place in June 1994, and no problems were noted. However, during an unannounced visit in 1986, DEQ observed releases to the wetlands from the oil/water separator. Harbor characterized the discharge as storm water runoff only. Because the facility lacked the appropriate permit, DEQ required Harbor to apply for a general water quality permit for discharge of treated storm water runoff. DEQ issued the permit in December 1986.

During another unannounced site visit in May 1988, a DEQ inspector noted a solvent odor from the oil/water separator discharge, and sampled liquid from the separator as well as from the truck wash drain/sump in the center of the site. The sample from the truck wash sump contained 70 ppm TCE; TCE was also detected in the oil/water separator. These results showed that the truck wash sump, which DEQ had believed was a closed-loop system, actually drained to the oil/water separator and eventually to the wetlands, thus violating the general water quality discharge permit. As a result, DEQ revoked the permit in August 1988.

After Harbor Oil challenged this revocation, DEQ and Harbor settled the matter by drafting and agreeing to a Consent Order in June 1989. The agreement allowed Harbor to continue discharging site runoff into the wetlands, but required disposal of its process waste water (i.e., water driven off waste oil) to the sanitary sewer. (This had originally been a permit condition in 1975.) The agreement also required that runoff from the truck washing area be collected and routed through a waste water pre-treatment system so that no TCE could enter the waste water stream. These improvements were implemented by 1991.

EPA Region 10 conducted a hazardous waste site inspection at Chempro in February 1980, several months after the fire. EPA concluded that the operation did not appear to generate significant quantities of hazardous waste. EPA felt that the tank diking system was inadequate, and also recommended further investigation into the facility's waste water discharges to the "swamp." A June 1984 EPA Preliminary Assessment of the site recommended further federal action, so a Preliminary Site Inspection (SI) of the facility was completed in January 1985. The SI included sampling of the oil/water separator pond, and this liquid contained up to 4.5 ppm TCE. Although EPA decided not to pursue further CERCLA action at the site, it suggested follow-up under the authority of RCRA and NPDES water permit staff. EPA also completed a Level I Site Inspection Prioritization (a review of existing file documents) in October 1994, recommending characterization of the surface water pathway under state authority. EPA plans no further investigation under the federal Superfund Program.

One DEQ RCRA inspection, from June 1992, is documented in source files. During the visit, an oily substance was noted on the

ground, which Harbor stated was lignin (a nonhazardous material that they were using instead of oil for suppressing dust). DEQ determined that the facility generated one 55-gallon drum per month of F001 hazardous waste (TCE sludge), but because there were 170 drums on site during the visit, Harbor Oil was placed into RCRA's Large Quantity Generator status. (Apparently, Sunwest Energy had left the drums during 1991 merger negotiations with Harbor that ultimately fell through.) Two of these drums were open, and at least one leaked. DEQ cited Harbor for three general RCRA violations: 1) storage of hazardous waste without a permit; 2) failure to make hazardous waste determinations; and 3) failure to retain Land Disposal Restriction forms. DEQ assessed a civil penalty of $10,777 for these violations, which Harbor paid in full in May 1993.

Stockyards/Harbor Oil/Wetlands Sampling Summary: The Preliminary Site Assessment for Portland Stockyards, prepared by Golder Associates, Inc. for OWS in July 1991 is the most comprehensive report on contamination throughout the 46-acre Stockyards site. Golder's work included: 1) sampling 23 existing monitoring wells; 2) installing one intermediate, two deep, and 14 shallow monitoring wells; 3) collecting over 400 soil samples and over 100 groundwater and surface water samples; and 4) preparing a detailed hydrogeologic analysis of the Stockyards site.

Six of the seven monitoring wells on the Harbor Oil site are shallow, and one is deep (see Fig. 3). The site also has a shallow production well for emergency firefighting use. Several of the wells, including the production well and the deep well, were analyzed for VOCs, TPH, and BTEX in 1990. VOC compounds were detected in the production well sample, with **TCE at 11 ppb**, PCE at 3 ppb, and 1,1,1-trichloroethane (TCA) at 5 ppb. The deep well contained PCE only, at 4 ppb. One of the shallow wells contained **7 ppb benzene**. (The levels in boldface exceed Maximum Contaminant Levels (MCLs), which are established by EPA and indicate the maximum permissible level of specific contaminants in public water systems.)

Numerous soil samples were collected on and adjacent to Harbor Oil, at depths ranging from the surface to 15 feet. Most on-site soil samples contained TPH, with maximum levels of 13,700 ppm at 5 feet and 500 ppm at 10 feet. Only three of 18 sample locations on the Harbor site contained detectable TCE, with a high of 60 ppb in a 2.5-ft. sample at the sites' southwest corner. (Perchloroethylene was also found in this sample at 92 ppb.)

Golder Associates' 1991 study included soil sampling at 10 locations along the perimeter and interior of wetlands on the Stockyards property. Collected from ground surface to depths of about 5 feet, these samples contained low to non-detectable levels of TPH and BTEX.

In August and September 1994, prior to the Limex diesel spill,

Golder sampled soil from the drainage trench that runs between Limex and Harbor Oil, and also installed and sampled a shallow monitoring well in this area. This work was requested by Jordan Schnitzer Properties, a potential buyer of the Stockyards site. The soil samples, collected from depths of between 0.5 and 1 ft. at 40-ft. intervals, contained diesel/oils at concentrations ranging from 1,400 to 11,000 ppm. The groundwater sample contained no TPH or VOCs above detection limits. Following the November 1994 diesel spill, some freshly contaminated soil was excavated from the wetlands, but DEQ spill oversight staff suspended the cleanup after determining that an oily layer 16 inches below the surface represented pre-existing contamination.

Environmental Setting/Exposure Pathways: Golder Associates' 1991 Preliminary Site Assessment of the Stockyards divides groundwater at the site into shallow, intermediate, and deep zones. The shallow aquifer consists of permeable sandy fill to a depth of 15 to 20 feet, and the deep zone is associated with gravels beginning at about 110 feet. This layer and the underlying Troutdale Formation form a major regional aquifer that supports a number of high-yielding wells, including a production well on the Stockyards property. The shallow and deep aquifers are separated by a 100-foot layer of sands and silts with significantly lower hydraulic conductivity. This is Golder's "intermediate aquifer."

As of 1991, shallow groundwater flowed south, influenced primarily by surface infiltration from Stockyard watering pens to the north (forming a groundwater mound). Flows in the intermediate and deep system are influenced by seasonal fluctuations of the nearby Oregon Slough/Columbia River system and subject to seasonal reversals. Generally, groundwater flows northwest in summer/fall, and south in winter/spring. Local groundwater depth is about 10 feet.

The site's potential threat to the public appears low. Groundwater beneath Harbor Oil is contaminated, but at low levels; in addition, this contamination could have originated from off-site sources as well as from on-site operations. Shallow groundwater is not used for drinking, and deep groundwater is limited to commercial and industrial use. In areas of surficial soil contamination, the contaminants are generally not volatile, and direct contact risks appear to be low. There are no known residences in the site vicinity.

As discussed previously, there is abundant surface water west and south of Harbor Oil. The Oregon Slough and Force Lake are within 1,000 feet of the site. The wetlands associated with Force Lake support great blue heron nesting areas, and the City of Portland considers this wetlands, as well as the lake, to be a sensitive environment. Historically, releases from the site have had major impacts on the wetlands and the lake; however, the volume of contaminated runoff has decreased over the past 10 to 15 years as the facility has improved its wastewater/storm water collection, treatment, and disposal practices.

References: Site Assessment has reviewed the following references in preparing this strategy recommendation:

* Preliminary Environmental Site Audit, Proposed Transfer Station Site, Portland, Oregon, Sweet-Edwards/EMCON, Inc. for Waste Management of Oregon, Inc., November 18, 1987.

* Environmental Audit: Field Investigation and Remedial Alternatives Assessment, Proposed Transfer Station Site, Portland, Oregon, Sweet-Edwards/EMCON, Inc. for Oregon Waste Systems, Inc., April 25, 1988.

* Preliminary Site Assessment for Portland Stockyards, Golder Associates, Inc. for Oregon Waste Systems, Inc., July 24, 1991.

* Oregon Waste Systems Merit Truck Stop Corrective Action Plan, Golder Associates, Inc. for Oregon Waste Systems, Inc., September 13, 1991.

* Site Inspection Prioritization (SIP) Report for Chempro of Oregon Site, URS Consultants, Inc. for EPA Region 10, October 17, 1994.

* Report on Ditch Sampling, Stockyards Site, Golder Associates, Inc. for Jordan Schnitzer Properties, October 24, 1994.

* DEQ files located in the Northwest Region office: 1) source files for air quality, water quality, and RCRA; 2) leaking underground tank files 26-89-31, 26-90-291, and 26-90-461; and 3) spill file #94-290.

Recommendation/Action: Operating practices at the site appear to have improved since the 1960s and 1970s, when contaminated runoff drained routinely into the wetlands west and south of the site. It is clear that past practices and the catastrophic 1979 fire contaminated portions of the Harbor Oil site and the wetlands complex. There is no evidence that these releases were followed by any remedial actions. Recent soil removal from the wetlands in the aftermath of the Limex spill showed that significant, pre-existing contamination remains in this area.

The primary issues of concern at this site are soil and surface water contamination resulting from past releases, and the effects of this contamination on the ecologically sensitive wetlands associated with Force Lake. Therefore, Site Assessment recommends that Harbor Oil's owner/operators evaluate the full extent of soil contamination resulting from past releases, including the Harbor Oil site and adjacent wetlands. This should be followed by an appropriate remedial action plan. Because the November 1994 Limex spill indicates that even moderate product releases in the site vicinity can reach the wetlands, Harbor Oil's owner/operators should also take steps to ensure that any foreseeable on-site

release would be prevented from reaching the wetlands. Finally, Site Assessment recommends that Harbor Oil's owner/operators evaluate the source(s) of groundwater VOC contamination beneath the site. These actions warrant a medium priority, according to the Site Assessment Prioritization System.

The Harbor Oil site should be placed on the Confirmed Release List. Because further action is needed and PAs have been completed for the site (EPA, 1984; Golder Associates, 1991), it should also be placed on the Confirmed Release Inventory.

Referrals Within or Outside DEQ: This site has not been referred to another division of DEQ or to an outside regulatory agency.

Other: This site is currently listed on DEQ's ECSI database; it will be updated with information contained in this decision document, and to reflect Site Assessment's decision for further action at the site.

Harbor Oil, Inc. #24 2/95

SITE ASSESSMENT PRIORITIZATION SYSTEM CRITERIA

The following guidance is intended for prioritizing continued investigation of hazardous substance release sites, or sites having **significant potential** for release. An actual release at the site is not necessary: sites posing a **substantial threat** to health, safety, or the environment should also be evaluated. Once a reasonable effort has been made to collect all necessary information regarding a release or potential release, individual criteria will be reviewed, and priority values assigned according to this guidance and **best professional judgement.** Record all values on a site priority evaluation worksheet. Once all criteria are ranked, the evaluator will assign an overall site priority based on the weight of the rankings and best **professional judgement.** A copy of the completed Site Prioritization Worksheet should be affixed to the Site Report as part of a formal screening. A completed Site Prioritization Worksheet should include narrative support ("Comments" section of the worksheet) for the overall priority assigned; address any inconsistencies between individual concerns and overall site priority in the "Comments" section.

Sites with multiple pathways of concern may require a separate worksheet for each pathway.

1. Substance Characteristics

A. Toxicity/Persistence

petroleum products

Based upon State Reportable Quantities (RQs) listed in Appendix I of OAR 340-108. If more than one substance is involved, reference the component having the lowest State RQ. Pesticide products not listed in Appendix I are considered to have a State RQ of 1 pound. Petroleum product releases are considered MEDIUM priority.

HIGH: State RQ of 1-100 pounds

(MEDIUM:) State RQ of 100-500 pounds

LOW: State RQ of 500 pounds

NO ACTION: Substances generally recognized as safe (GRAS) or non-hazardous, or that dissipate rapidly.

B. Mobility

Depends upon the transport medium of greatest concern, or transport medium that allows greatest mobility. Petroleum product releases are considered MEDIUM priority.

HIGH: For groundwater concerns, substances with a water solubility greater than 100 ppm, or detected soil leachate concentrations exceeding those listed in Oregon's Soil Cleanup Standards (OAR 340-122-045/046), or capable of unaided diffusion into shallow aquifers;

for surface water concerns, substances with a water solubility greater than 100 ppm, or with particle size and density that approximate the surface waterborne transport qualities of sands, silts, clays, or colloids;

for air quality concerns, substances having vapor pressures greater than 100 mm Hg at 20° C, or with particle size and density that approximate the airborne transport of sands, silts, clays, or finer particles;

for soil concerns, substances capable of diffusing off-site.

MEDIUM: For groundwater concerns, substances with a water solubility of 10-100 ppm, or detected soil leachate concentrations between 10% and 100% Oregon Soil Cleanup standards.

for surface water concerns, substances with a water solubility of 10-100 ppm, or with particle size and density that approximate the surface waterborne transport qualities of sand;

for air quality concerns, substances having vapor pressures between 25-100 mm Hg at 20° C, or with particle size and density that approximate the airborne transport of sand;

for soil concerns, substances capable of substantial diffusion, but unlikely to diffuse off-site.

LOW: For groundwater concerns, substances with a water solubility of less than 10 ppm, or detected soil leachate concentrations less than 1/10 Oregon Soil Cleanup Standards.

for surface water concerns, substances with a water solubility of less than 10 ppm, or with particle size and density greater than the surface waterborne transport qualities of sand;

for air quality concerns, substances having vapor pressures less than 25 mm Hg at 20° C, or with particle size and density greater than the airborne transport qualities of sand;

for soil concerns, substances capable only of slow diffusion within local soil types.

NO ACTION: For groundwater concerns, substances that are essentially insoluble in water (solubility of less than 0.1 ppm), or produced no detectable soil leachates;

for surface water concerns, substances that are both essentially insoluble in water, and have a particle size and density too great to be affected by rapid surface runoff; immobile in streams under ambient conditions;

for air quality concerns, substances having vapor pressures of less than 5 mm Hg at 20° C, or with particle size and density unlikely to be affected by brisk winds.

for soil concerns, substances incapable of significant diffusion in local soil types.

2. **Contamination Route**

Depends upon the transport medium of greatest concern, or that allows greatest mobility.

HIGH: For groundwater concerns, an unconfined or semi-confined aquifer at less than 25 feet bgs; a known release to an on-site drywell or other similar surface disruption;

Seasonal wetlands are within 250 ft. of the site.

for surface water concerns, surface water within a linear downslope distance of 250 feet;

for soil concerns, released substance migrates rapidly in soils; soil contamination extends, or is likely to extend, beyond site boundary, impairing beneficial use of soils on adjacent properties;

for air quality concerns, release produces a substantial, prolonged plume that extends at detectable levels beyond the site boundary, exceeding PELs or IDLH levels.

MEDIUM: For groundwater concerns, an unconfined or semi-confined aquifer at 25-150 feet bgs; on-site drywells or other similar surface disruption that might facilitate the spread of contaminants;

for surface water concerns, surface water at a linear downslope distance of 250 feet-0.5 mile;

for soil concerns, release migrates in soils and impairs their on-site beneficial uses;

for air quality concerns, release produces a sustained on-site plume that exceeds PELs, or sustained or periodic off-site plumes that do not exceed PELs or IDLH levels.

LOW: For groundwater concerns, an unconfined or semi-confined aquifer at greater than 150 feet bgs;

for surface water concerns, surface water at a linear downslope distance of 0.5 - 2 miles;

for soil concerns, release is likely only to migrate slowly and not extend

beyond site boundary; beneficial use of on-site soils is not significantly impacted;

for air quality concerns, release may result in periodic on-site plumes, but at concentrations below PELs or IDLH levels.

NO ACTION: For groundwater concerns, no unconfined or semi-confined groundwater (a permanent barrier prevents migration of contaminants into groundwater);

for surface water concerns, no surface waters or discharge routes within a linear downslope distance of 2 miles;

for soil concerns, released substance dissipates rapidly to undetectable or insignificant levels; substance unlikely to migrate beyond release point;

for air quality concerns, future impact on air quality is not anticipated.

3. Vulnerable Targets

A. Population Affected

HIGH: For groundwater concerns, one municipal well, one community well, one well used for food processing, or greater than 10 domestic wells located, or likely to be located, within an area 1 mile downgradient, 0.5 mile laterally, and 0.25 mile upgradient of a release site or plume;

for surface water concerns, a drinking water intake located, or likely to be located, within 2 miles downstream of the furthest known extent of the release plume;

for soil or air quality concerns, release is within 0.25 mile of schools, parks, residential or high-density commercial area.

MEDIUM: For groundwater concerns, one municipal well, one community well, one well used for food processing, or greater than 10 domestic wells located, or likely to be located, within an area 1-2 miles downgradient, 0.5 - 1 mile laterally, and 0.25 - 0.5 mile upgradient of a release site or plume; one food crop irrigation well or 1 to 10 domestic wells located, or likely to be located, within an area 1 mile downgradient, 0.5 mile laterally, and 0.25 mile upgradient of a release site or plume;

for surface water concerns, significant fishing, food crop irrigation intakes, or contact recreational use within, or likely to be within, 2 miles downstream of the furthest known extent of the release plume;

for soil concerns, a release within 0.25 - 0.5 mile of a school, park, residential, or high density commercial areas; a release within an industrial or low-density commercial area, or on agricultural land used to raise food crops.

for air quality concerns, a release within 0.25 - 0.5 mile of a school, park, residential or high-density commercial areas; a release within an industrial or low-density commercial area.

LOW: For groundwater concerns, one or more industrial or non-food crop irrigation wells located, or likely to be located, within an area 1 mile downgradient, 0.5 mile laterally, and 0.25 mile upgradient of a release site or plume; 1 to 10 domestic wells within, or likely to be within, an area 1 - 2 miles downgradient, 0.5 - 1.0 mile laterally, and 0.25 - 0.5 mile upgradient of a release site or plume;

Force Lake used for non-contact recreation

for surface water concerns, non-food crop irrigation withdrawals, industrial withdrawals, or non-contact recreation within, or likely to be within, 2 miles downstream of the furthest known extent of the release plume;

for soil or air quality concerns, a release on non-food-crop agricultural or forested lands.

NO ACTION: Lack of substantial exposure to humans, biological, or environmental receptors:

1). Shallow groundwater is unsuitable for use because of naturally poor quality (brackish, or high levels of naturally occurring contaminants such as arsenic, fluorides, boron, etc.);

2). surface water within 2 miles downgradient has no practical uses because of poor natural quality (e.g., brackish);

3). for soil/air quality concerns, lands within 0.5 mile are unused, unproductive, and uninhabited.

B. Sensitive Environments/Species

HIGH: Federal or state-designated sensitive or protected ecosystems, or threatened or endangered species habitat, located within a 1-mile radius, or within 2 miles downstream or downgradient or release site. This includes fish, wildlife, or game management areas, spawning, migratory, or feeding areas.

MEDIUM: Sensitive natural resources within a 1-mile radius, or within 2 miles downstream or downgradient.

Force Lake & associated lands considered a sensitive natural resource by City of Portland, and is a GBH nesting area.

LOW: Environmental resources of lesser importance within a 1-mile radius, or sensitive or protected ecosystems or resources between 1 - 2 miles of release site, or within 3 miles downstream or downgradient of the release site.

NO ACTION: Lack of exposure, or potential exposure, to sensitive environments or species; no sensitive environments or species within a 6-mile radius.

4. Verification of Release or Significant Threat of Release

Some of the factors to be considered in evaluating the significance of a release, or significant threat of release, include:

A. on-site drywells or sumps,

B. actual observation of leaking containers (drums, tanks, piping, etc), container seals, or poor container condition,

C. evidence of leaking berms, dikes, lagoon or pit liners, or lack of properly engineered liners,

D. inappropriate or incompatible containment materials.

Releases from site are very well documented

HIGH: Actual release, or evidence of release threat, observed and documented by qualified government inspector or agent; written statement by owner/operator or representative that a release has occurred; reliable laboratory data indicating that a release has occurred;

MEDIUM: Release reported, but documentation is weak or incomplete; insufficient release details reported; laboratory data weak, questionable, or non-existent;

LOW: Unverified complaint or undocumented release; no confirming laboratory data;

NO ACTION: Release, because of the substance's characteristic nature, has already dissipated; future significant exposure to humans, biological, or environmental receptors, is deemed unlikely; an authorized or permitted release.

5. Quantity or Concentration of Substance

Contaminant concentrations are based upon Lifetime Health Advisories (LTHAs), Maximum (or Proposed Maximum) Contaminant Levels (MCLs), Lower Explosive Limits (LELs), and Soil Cleanup Levels, Groundwater Reference Concentrations, Leachate Reference Concentrations, or Oregon Soil Cleanup Standards.

HIGH: Any release or potential release known to involve at least three times the relevant Oregon Reportable Quantity (RQ) of a hazardous substance, or

TCE has been detected in oil/water separator runoff at 3 orders of magnitude above MCL.

1). for groundwater or surface water concerns, any substance detected in the site's groundwater or surface waters that exceeds 10 times the LTHA or MCL; contaminants detected downgradient off-site above the relevant LTHA or MCL; on-site soils exceeding 10 times the relevant Oregon Soil Cleanup leachate standards;

2). for soil concerns, any substance exceeding 100 times the relevant Oregon Soil Cleanup standards; off-site soil contamination that, due to migration, exceeds Oregon Soil Cleanup standards;

3). for air quality concerns, sustained or intermittent concentrations of released substances exceeding relevant IDLH, PEL, or 20 percent of LEL values beyond the site boundary;

MEDIUM: Any release or potential release known to involve at least twice the relevant Oregon RQ of a hazardous substance, or

1). for groundwater or surface water concerns, any substance detected in groundwater or surface waters on-site in concentrations above the relevant LTHA or MCL, or on-site soil leachates detected above Oregon Soil Cleanup standards; off-site downgradient groundwater or surface water contaminant detected at concentrations above 1/10 the relevant LTHAs or MCLs;

2). for soil concerns, any substance exceeding 10 times the relevant Oregon Soil Cleanup standards when soil contamination has not been demonstrated to extend beyond the site boundary;

3). for air quality concerns, sustained or periodic on-site release concentrations exceeding relevant IDLH or PEL values, or 20 percent of LEL values, with no known off-site exceedences;

LOW: Any release or potential release known to involve one or more hazardous substances above the relevant Oregon RQ, or

1). for groundwater or surface water concerns, any substance detected in groundwater or surface waters at the site that exceeds 1/10 the LTHA or MCL, but not detected off-site; on-site soil leachates exceeding 1/10 the

relevant leachate standards specified in Oregon's Soil Cleanup standards;

2). for soil concerns, soil contamination has been confined to the site, but on-site soils exceed the relevant Oregon Soil Cleanup standards;

3). for air quality concerns, periodic or sustained on-site release concentrations that do not exceed relevant IDLH or PEL values, or 20 percent of LEL, with no known off-site plume;

NO ACTION: Quantity of substance released insubstantial; released substance quickly disperses or is readily biodegradable; a de minimis release.

6. Environmental Effects on Release Control

Environmental factors that may affect the extent or migration of released substances.

HIGH: For groundwater concerns, local average precipitation exceeds 45 inches per year; release site lies within an area that floods annually; soils are highly permeable to the contaminant or to water solutions of the contaminant;

for surface water concerns, local average precipitation exceeds 45 inches per year; release site lies within an area that floods annually;

for soil or air quality concerns, release site is at least periodically exposed to winds capable of carrying contaminant off-site.

MEDIUM: For groundwater concerns, local average precipitation ranges from 20 - 45 inches per year; release site lies within a 10-, 20-, or 50-year floodplain; soils have low to moderate permeability for the contaminant or to water solutions of the contaminant;

Precip. is about 40 inches per year.

for surface water concerns, local average precipitation ranges from 20 - 45 inches per year; release site lies within a 10-, 20-, or 50-year floodplain;

for soils or air quality concerns, release site is at least periodically exposed to winds capable of spreading contaminant across wide areas of the site.

LOW: For groundwater concerns, local average precipitation is less than 20 inches per year; release site lies within a 100-year floodplain; soils have low permeability for the contaminant or to water solutions of the contaminant;

for surface water concerns, local average precipitation is less than 20 inches per year; release site lies within a 100-year or 500-year floodplain;

for soil or air quality concerns, release site is at least periodically exposed to winds capable of transporting the contaminant beyond the original point of release.

NO ACTION: Released substance is adequately confined or isolated in a manner that prevents further impact to human, biological, or environmental receptors.

SITE PRIORITIZATION WORKSHEET

Site Name: Harbor Oil, Inc.

Medium of Concern: surface water

	H	M	L	NA
1. Substance Characteristics:				
A. Toxicity/Persistence:	—	X	—	—
B. Mobility:	—	X	—	—
2. Contamination Route:	X	—	—	—
3. Vulnerable Targets:				
A. Population Affected:	—	—	X	—
B. Sensitive Environments/Species:	—	X	—	—
4. Verification of Release/Threatened Release:	X	—	—	—
5. Quantity/Concentration of Substance:	X	—	—	—
6. Environmental Effects on Release Control:	—	X	—	—
Overall Site Priority:	—	X	—	—

Comments: There is evidence of significant subsurface soil contamination in the off-site wetland area, which resulted from historical releases from the Harbor Oil site. This contamination could continue to degrade wetland habitat, but because it is not right at the surface, the priority for further action is MEDIUM.

Evaluator: Gilbert M. Wistar Date: 2/2/95

NOTE: Under no circumstances can a documented release above action levels be given an NFA without additional assessment and/or sufficient supporting documentation.

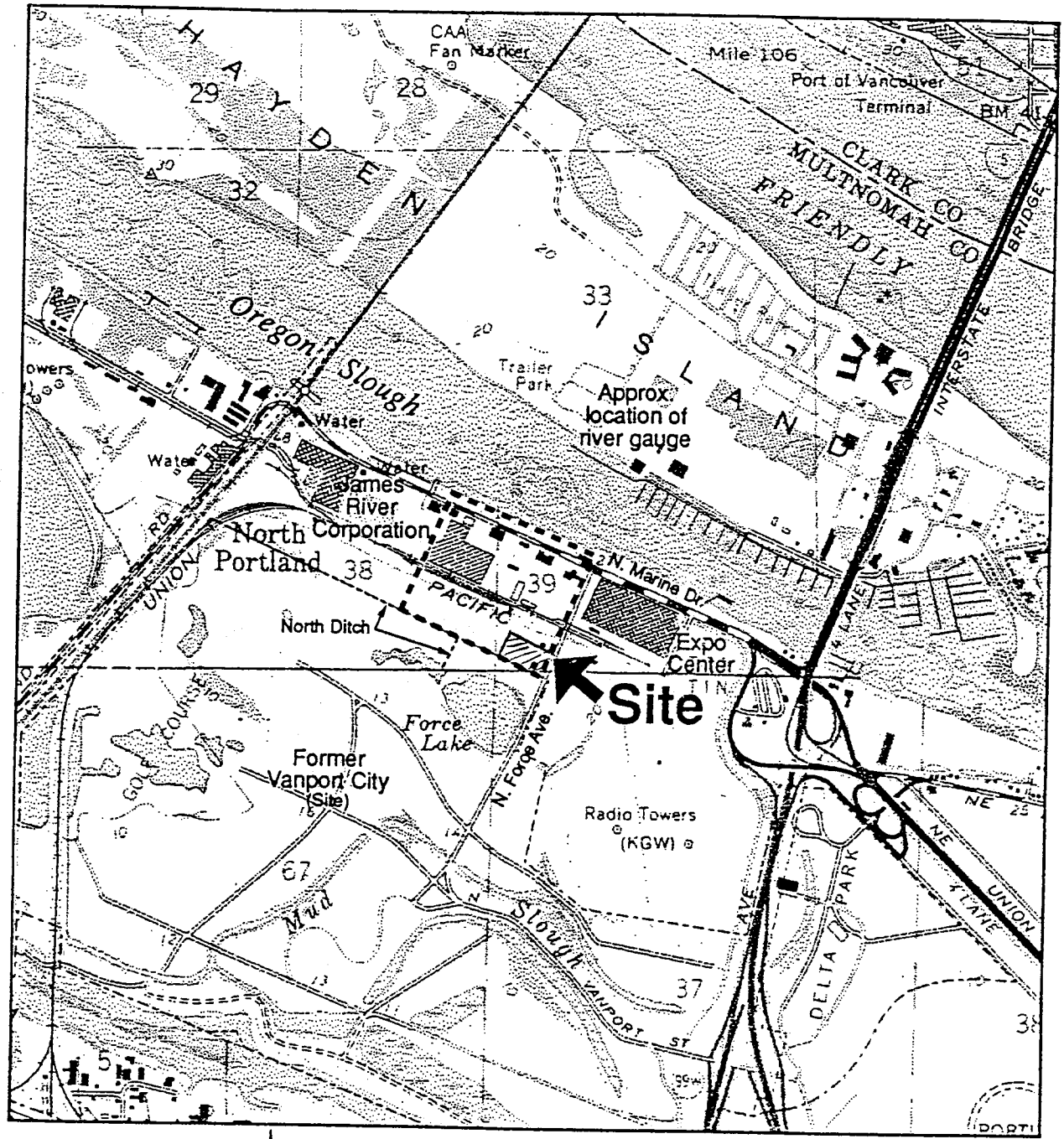
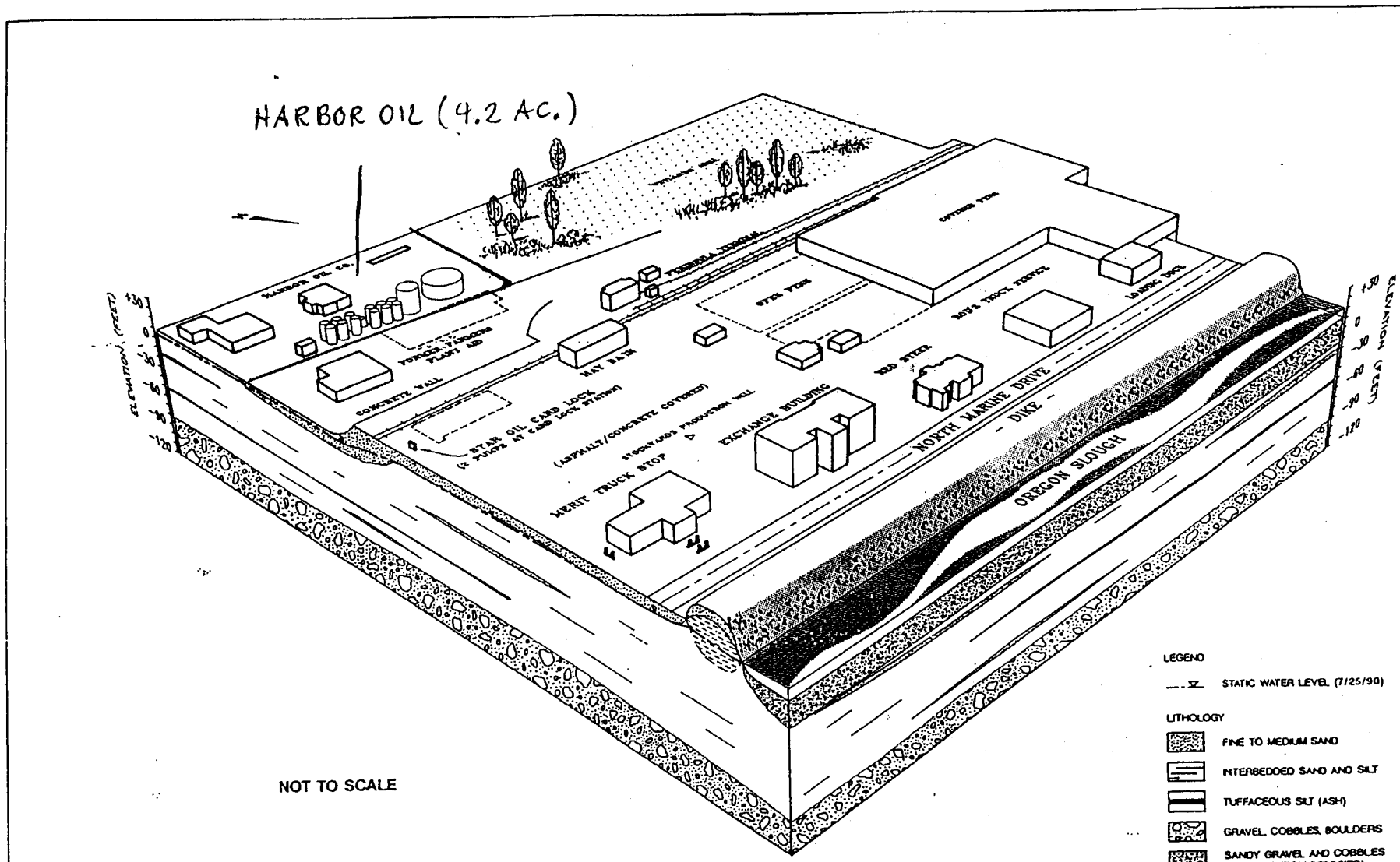


FIGURE 1: OREGON WASTE SYSTEMS, INC. 46-ACRE SITE

GENERAL SITE LOCATION MAP
OWS/STOCKYARDS/OR

PROJECT NO.: 903-1080.020 DWG. NO. 23353 DATE 9/21/90 DRAWN CB

Golder Associates



NOT TO SCALE

FIGURE 2: STOCKYARDS BLOCK DIAGRAM

OWS/STOCKYARDS

PROJECT NO. 903-1080.000 DWG. NO. 34180 DATE 8/6/90 DRAWN

Golder Associates Inc.

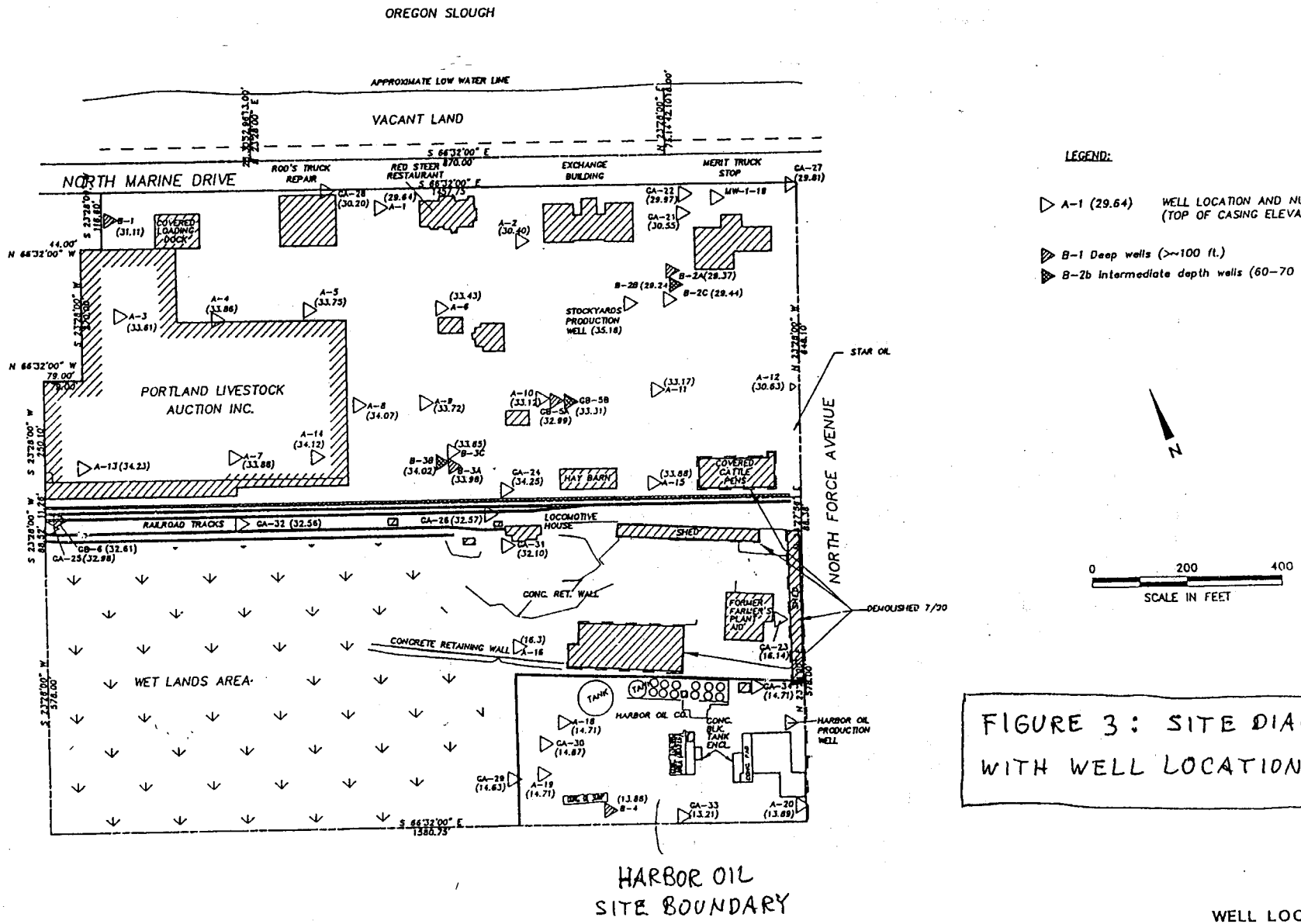


FIGURE 3: SITE DIAGRAM WITH WELL LOCATIONS

HARBOR OIL SITE BOUNDARY

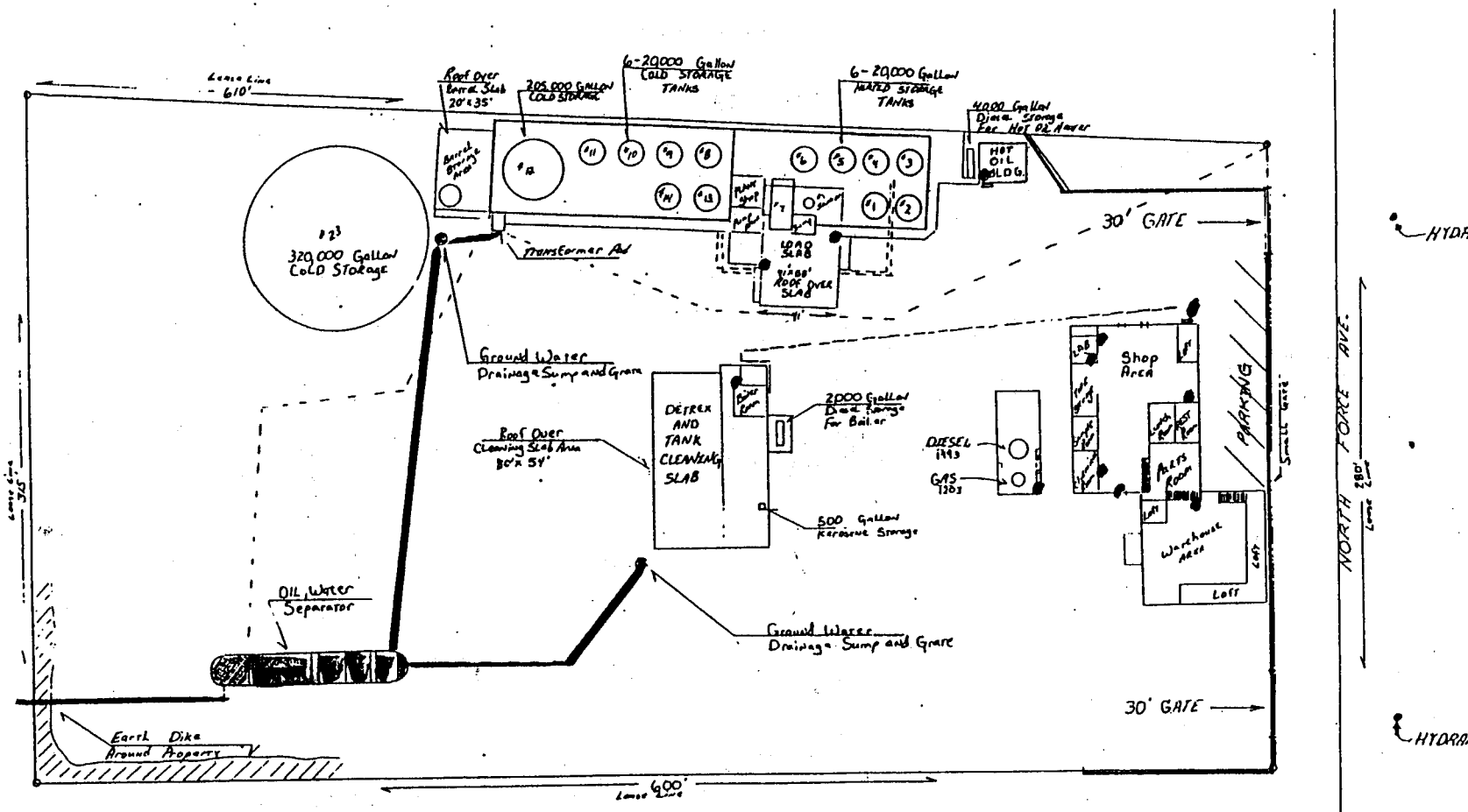
WELL LOCATION MAP
OWS/STOCKYARDS/OR

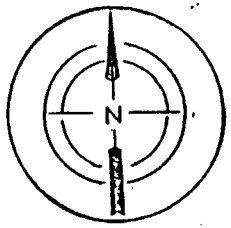
Golder Associates

PROJECT NO 903-1080.090 DWG NO 33785 DATE 12/10/90 DRAWN JSS APPROVED RL

8

Harbor Oil, Inc.





LEASE LINE
CYCLONE FENCE
FIRE EXTINGUISHER
FIRE HOSE REEL (2")
FIRE HOSE WELL (2")
UNDERGROUND ELECT.
UNDERGROUND Drainage Line
UNDERGROUND Water Line
UNDERGROUND PRODUCT LINE

FIGURE 4:
HARBOR OIL
PLOT PLAN

Rodger Osborn
1989

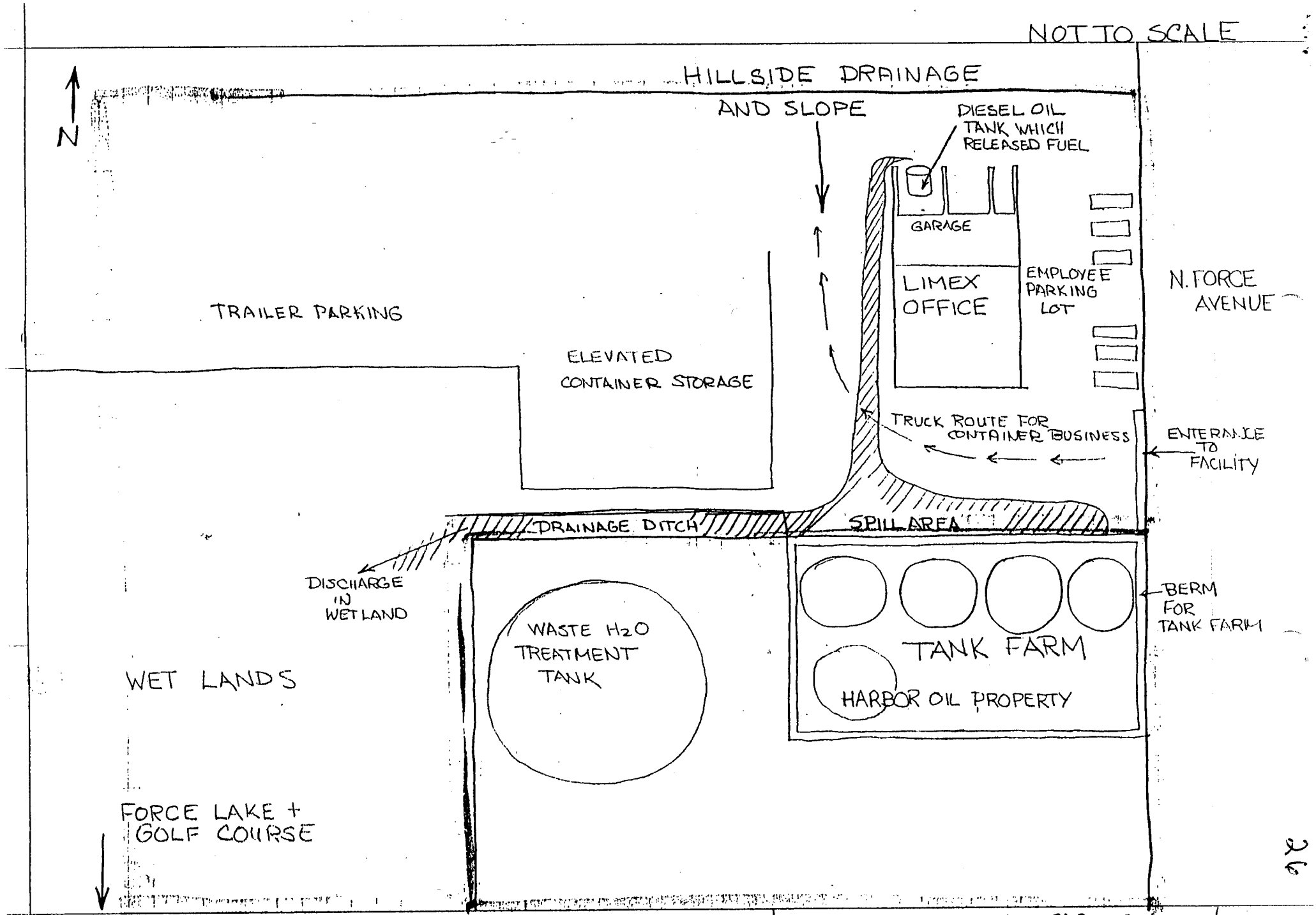


FIGURE 5: SCHEMATIC OF NOV. 1994 LIMEX DIESEL SPILL